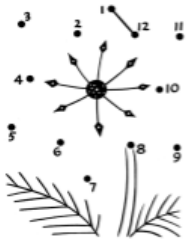
Date: August 28

Title: 0.1 Connect the Dots



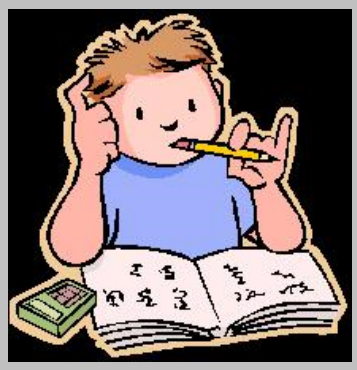
Objective: To understand how to write equivalent fractions and how to compute with fractions.

IN: Make a list of all the concepts you need to be able to do in order to add, subtract, multiply and divide with fractions.

For example, how would you do...?

$\frac{3}{5}+\frac{2}{3}$ $\quad \frac{3}{4}-3$ $\quad \frac{-1}{3}\cdot 12$ $\quad 5\div\frac{1}{5}$

Look Investigation: 0.1 Connect the Dots



Preview (text and vocabulary)

Access Prior Knowledge

Set the purpose

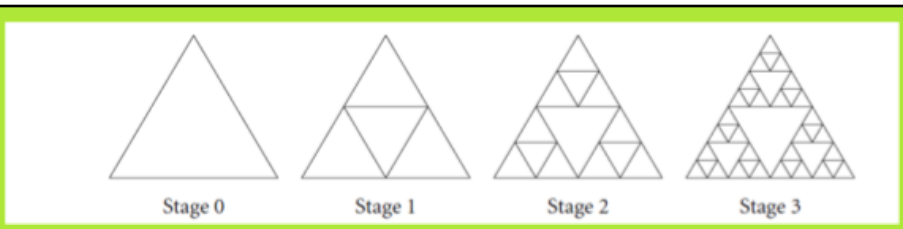
In the notes section of your notebook, quickly write down what you noticed using the PAS strategy...be ready to share out!

Let's do this...

Write down any vocabulary you don't know.

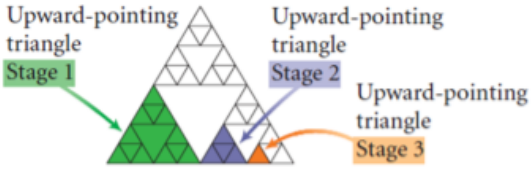
Write all answers as completely as you can.

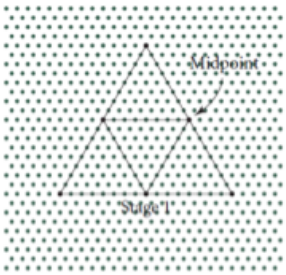
Remember our expectations for this class...



Step 1 Look at the figures above. The starting figure is the Stage 0 figure.
To create the Stage 1 figure, you join the ***midpoints*** of the sides of the triangle.
You can locate the midpoints by counting dots to find the middle of each side.
The Stage 1 figure has three small upward-pointing triangles. See if you can find all three.

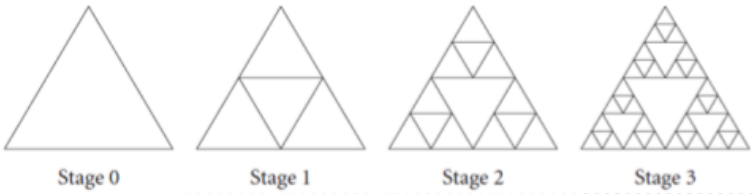
Step 2 At Stage 2, line *segments* connect the midpoints of the sides of the three upward-pointing triangles that showed up at Stage 1.
What do you notice when you compare Stage 1 and Stage 2?

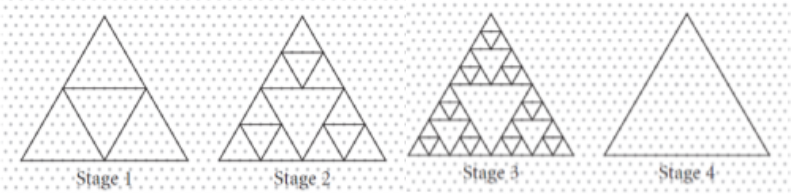




Step 3 How many new upward-pointing triangles are there in the Stage 3 figure?

Step 4 In your notebook, create the Stage 4 figure.
A blank triangle is provided. Glue it into your notebook in the notes section where you are working.
Connect the midpoints of the sides of the large triangle, and continue connecting the midpoints of the sides of each smaller upward-pointing triangle at every stage.
How many small upward-pointing triangles are in the Stage 4 figure?





Step 5 What would happen if you continued to further stages?
Describe any patterns you've noticed in drawing these figures.
You have been using a *recursive rule*.
The rule is "Connect the midpoints of the sides of each upward-pointing triangle."
If you could continue this process forever, you would create a fractal called the *Sierpin' ski triangle*.
At each stage the small upward-pointing triangles are *congruent*-the same shape and size.

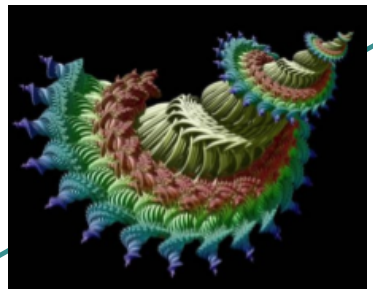
Step 6 If the Stage 0 figure has an area equal to 1, what is the area of one new upward-pointing triangle at Stage 1?

SUMMARY:

Today I learned...

OR

I would like to know more about...



OUT:

What is a recursive rule? Describe or draw an example.